



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,708	09/17/2003	Michael Allen Bryner	TK3690USNA	4383

23906 7590 03/08/2006

E I DU PONT DE NEMOURS AND COMPANY
LEGAL PATENT RECORDS CENTER
BARLEY MILL PLAZA 25/1128
4417 LANCASTER PIKE
WILMINGTON, DE 19805

EXAMINER

PIERCE, JEREMY R

ART UNIT	PAPER NUMBER
----------	--------------

1771

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/664,708	BRYNER, MICHAEL ALLEN	
	Examiner	Art Unit	
	Jeremy R. Pierce	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 15 and 17-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16, 23 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 21, 2005 has been entered.

Response to Amendment

2. Applicant's amendment filed on December 21, 2005 has been entered. Claims 1, 2, 10, and 14 have been amended. Claims 1-24 are currently pending with claims 15 and 17-22 withdrawn from consideration.

Claim Rejections - 35 USC § 102/103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 1771

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 7-9, 13, 14, and 16 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Zucker (US 2003/0129909).

Zucker discloses a nonwoven fabric having a support layer and a barrier layer formed from nanodenier continuous filaments (paragraph 9). The fabric is useful as a barrier in disposable hygiene applications and filtration (paragraph 14). Although Zucker does not explicitly teach the limitations of hydrohead values or Frazier permeability, it is reasonable to presume that said limitations are inherent to the invention. Support for said presumption is found in the use of similar materials (i.e. nanofiber barrier layer) and in the similar production steps (i.e. bonding to a substrate layer) used to produce the nonwoven fabric. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594. In the alternative, the claimed hydrohead values and Frazier permeabilities would obviously have been provided by the process disclosed by Zucker because the references specifically teach that the material is made in order to create a barrier layer with improved hydrostatic head (paragraph 9). Note *In re Best*, 195 USPQ 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102.

With regard to claims 2-4, the fiber diameter for the infinite length fibers of the barrier layer is preferably less than 500 nanometers (paragraph 9). With regard to claims 7-9, Zucker discloses using polyolefin in the nanofibers, including propylene and ethylene units (paragraph 10).

With regard to claim 13, Zucker does not teach a solids fraction value for the barrier fabric. As set forth above, it is reasonable to presume Zucker inherently meets this limitation because of the use of similar materials and similar methods. Alternatively, the claimed limitation would obviously have been provided by Zucker because the reference discloses improving barrier performance barrier performance and reducing pore size using smaller fiber diameter (paragraph 9).

With regard to claim 14, Zucker does not disclose the basis weight, hydrohead, and Frazier permeability as described in the claimed formula. As set forth above, it is reasonable to presume Zucker inherently meets this limitation because of the use of similar materials and similar methods. Alternatively, the claimed limitation would obviously have been provided by Zucker because the reference does disclose that barrier performance as measured by hydrostatic head and basis weight ratio is improved (paragraph 9). With regard to claim 16, Zucker discloses the nanofiber barrier layer is bonded to spunbonded support layer (claim 5).

Claim Rejections - 35 USC § 103

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zucker.

Zucker discloses that the finer denier layer creates smaller average pore sizes in the fabric (paragraph 29). While Zucker does not disclose any particular pore size for the invention, Zucker does teach that the prior art barrier layers created pore size distributions in the 7 to 12 micron range and 10 to 15 micron ranges (paragraph 6). Since the aim of Zucker is to produce an improved barrier fabric, it must be assumed that the pore size distribution in the barrier layer is improved over the prior art. It would have been obvious to a person having ordinary skill in the art at the time of the invention to provide pore sizes of no more than 23 micrometers in the barrier layer of Zucker in order to provide an improved barrier layer, as taught to be desired by Zucker.

7. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zucker in view of Fabbriante et al. (U.S. Patent No. 6,114,017).

With regard to claims 5 and 6, Zucker discloses that the basis weight of the barrier layer affects the resulting pore size of the fabric (paragraph 29). However, Zucker fails to teach the barrier layer to have a basis weight within the claimed range. Fabbriante et al. also teach nonwoven webs comprising nanodenier fibers used in absorbent garments and filters (Abstract). Fabbriante et al. teach that basis weights of the barrier fabrics may be between 10 and 30 gsm, and that increasing the basis weight improves hydrostatic head (See Tables 1 and 2). It would have been obvious to a person having ordinary skill in the art at the time of the invention to use a barrier layer with a basis weight between 20 and 51 gsm in the fabric of Zucker in order to obtain an optimal amount of hydrostatic head, as taught by Fabbriante et al.

8. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zucker in view of Benson et al. (U.S. Patent No. 6,746,517).

Zucker does not teach adding a hydrophobic coating material. Like Zucker, Benson et al. is directed to a fine fiber nanodenier fabric useful in filter media (Abstract). Benson et al. teach adding a hydrophobic coating to the nanofibers is preferable, and such a coating is typically fluorocarbon containing (column 12, lines 47-67). It would have been obvious to a person having ordinary skill in the art at the time of the invention to add fluorocarbon coating to the material of Zucker in order to improve filtration property, as taught by Benson et al.

9. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zucker in view of Healey (U.S. Patent No. 6,554,881).

Zucker uses a spunbonded fabric for the support layer (claim 5) but does not disclose the diameter of the fibers in that layer. Like Zucker, Healey teaches a filter fabric layer comprising fine fiber layer bonded to a support layer of spunbonded fibers (Abstract). Healey teaches that the spunbonded support layer has a fiber diameter ranging from 5 to 15 microns (column 30, lines 64-67). Because Zucker is silent to the diameter of the support layer fibers, it would have been necessary, and therefore obvious to a person having ordinary skill in the art at the time of the invention to use spunbonded fibers having a diameter in the range of 5 to 15 microns in order to provide a support layer that is sufficient for filtration purposes, as taught by Healey.

Response to Arguments

10. Applicant's arguments filed December 21, 2005 have been fully considered but they are not persuasive.

11. Applicant argues that Zucker does not contain an enabling disclosure as to sub-micron or nano-denier continuous fibers. Applicant asserts that Zucker points to U.S. Patent No. 6,114,017 (Fabbricante et al.) as enablement to making continuous filaments with diameters less than 1000 or 500 nm; and that Fabbricante et al. only discloses discontinuous fibers in that range. However, the Examiner disagrees.

First, it is noted that Zucker teaches the nano-denier continuous filaments may be made splitting multi-component fibers rather than direct spinning (paragraph 18). The Fabbricante et al. reference is not the sole source of enablement. Applicant does not address this method of making nano-denier fibers as being non-enabled.

Second, Fabbricante et al. do disclose continuous filaments of 0.5 microns. Fabbricante et al. provide a specific example comprising a mixture of continuous and discontinuous fibers having a diameter of 0.5 microns (column 9, lines 22-49). The Applicant asserts that this example is no longer relevant because the amended claims recite the barrier webs consist only of continuous fibers. However, Fabbricante et al. is not used to reject the claims. The rejection is based upon Zucker, which discloses a barrier layer of infinite length fibers having a diameter less than 500 nm (See paragraph 9). Applicant cannot attack Fabbricante et al. on the grounds that it does not disclose the claim limitations because it is not used as prior art in the rejection.

Applicant argues that Fabbricante et al. never discloses a manner of making webs of only continuous fibers that have hydrostatic heads as high as 145 cm and fiber

Art Unit: 1771

diameters of less than 2 microns. Again, it is noted that Zucker is the actual prior art used and that reference does meet the claim limitations. Applicant's attack on Fabbicante et al. is for lack of enablement. However, Fabbicante et al. disclose one example wherein continuous filaments are made with a diameter of 0.5 microns (Table 4). It is clear that Zucker teaches making continuous filaments within Applicant's claimed range and Fabbicante et al. at least provide an enabling disclosure as to the making of nanodenier continuous fibers so a person of ordinary skill in the art could practice the invention of Zucker.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy R. Pierce whose telephone number is (571) 272-1479. The examiner can normally be reached on normal business hours, but works flextime hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 1771

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Jeremy R. Pierce', is positioned above the printed name.

Jeremy R. Pierce
Examiner
Art Unit 1771

March 3, 2006